

## TABLE OF CONTENTS

LIST OF ACRONYMS .....	v
LIST OF PREPARERS.....	vi
LIST OF TECHNICAL REPORTS.....	viii
<b>CHAPTER 1 – PURPOSE AND NEED.....</b>	<b>1-1</b>
1.1 Project Location and Background .....	1-1
1.2 Corridor Planning .....	1-4
1.3 Need for the Proposed Action .....	1-9
1.4 Purpose of the Proposed Action .....	1-15
1.5 Related Environmental Impact Statements, Environmental Assessments, and Other Relevant Documents and Planning Studies .....	1-16
<b>CHAPTER 2 – ALTERNATIVES .....</b>	<b>2-1</b>
2.1 Development of “Reasonable” and “Other” Alternatives .....	2-1
2.2 Alternatives Considered but Eliminated from Detailed Study .....	2-2
2.3 Alternatives Selected for Detailed Study .....	2-19
2.4 Identification of the Preferred Alternative .....	2-21
<b>CHAPTER 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES .....</b>	<b>3-1</b>
3.1 Land Use.....	3-1
3.2 Farmlands .....	3-6
3.3 Social Conditions.....	3-7
3.4 Environmental Justice .....	3-8
3.5 Relocations .....	3-23
3.6 Economic Conditions .....	3-25
3.7 Pedestrians and Bicyclists .....	3-27
3.8 Air Quality.....	3-29
3.9 Noise .....	3-34
3.10 Water Quality .....	3-41
3.11 Permits .....	3-43
3.12 Wetlands .....	3-45
3.13 Floodplains .....	3-45
3.14 Wildlife .....	3-46
3.15 Threatened and Endangered Species .....	3-46
3.16 Cultural Resources.....	3-47
3.17 Hazardous Waste Sites .....	3-52
3.18 Visual Conditions .....	3-54
3.19 Energy.....	3-57
3.20 Invasive Species .....	3-57
3.21 Construction Impacts.....	3-58
3.22 The Relationship Between Local Short-Term Uses of Man’s Environment and the Maintenance and Enhancement of Long-Term Productivity .....	3-62

3.23 Any Irreversible and Irretrievable commitments of resources which would be involved in the Preferred Alternative .....	3-63
3.24 Cumulative Impacts.....	3-64
3.25 Context Sensitive Solutions.....	3-68
3.26 Comparison Summary of the Predicted Environmental Effects of Alternatives.....	3-69
3.27 Summary of Mitigation and Other Commitments.....	3-73
<b>CHAPTER 4 – COMMENTS AND COORDINATION.....</b>	<b>4-1</b>
4.1 Coordination Meetings.....	4-1
4.2 Correspondence Letters .....	4-3

**APPENDIX A: DRAFT PROGRAMMATIC SECTION 4(F) EVALUATIONS**

**APPENDIX B: TRAFFIC ANALYSIS**

**APPENDIX C: UDOT NOISE ABATEMENT POLICY**

**APPENDIX D: CULTURAL RESOURCES INFORMATION**

**APPENDIX E: PUBLIC HEARING**

**List of Tables**

Table 1-1. Utah Valley Communities' Growth Summary.....	1-9
Table 1-2. Relationship Between Capacity, Level of Congestion, and V/C Ratios for Urban Highways.....	1-10
Table 1-3. Relationship between Intersection Level of Service, Approach Delay, and Level of Congestion.....	1-11
Table 1-4. 2004 and Projected Year 2020 Traffic Volumes, V/C Ratio, and Level of Congestion.. ..	1-12
Table 1-5. PM Peak Intersection Operations Summary – State Street and Geneva Road.....	1-13
Table 2-1. Initial Range of Alternatives.....	2-1
Table 2-2. Comparison Between Projected Year 2020 Traffic Volumes and Capacity for a V/C of 0.85.....	2-2
Table 2-3. Summary of Vertical Alignment Options.....	2-9
Table 2-4. Summary of Horizontal Alignment Options for Western Segment of Roadway....	2-16
Table 3-1. City and County Population by Race - Year 2000.....	3-9
Table 3-2. City and County Income Levels for Project Area - Year 1999 .....	3-9
Table 3-3. Description of Census Tract, Block Groups, and Block in and adjacent to the project study area.....	3-10
Table 3-4. Population characteristics relating to the Block Data within the project study area. ....	3-11
Table 3-5. Select Survey Responses from Seven On-Corridor Racial/Ethnic Minority Respondents (March 2004 Survey).....	3-15
Table 3-6. Summary of Select Survey Responses from the Eight On-Corridor Racial/Ethnic Minority Respondents (March 2005 Survey). .....	3-18
Table 3-7. Household Income in 1999.....	3-19
Table 3-8. March 2004 Project Area Income and Household Size Statistics.....	3-20
Table 3-9. Properties from which Right-of-Way may be Required.....	3-23
Table 3-10. Air Quality Attainment Status for Motor Vehicle Related Pollutants in Utah County	

outside of Provo and Orem.....	3-29
Table 3-11. Projected Year 2008 and Year 2020 Intersection Level of Service at State Street and Geneva Road.....	3-30
Table 3-12. CAL3QHC Input Variable Values and Sources.....	3-30
Table 3-13. Year 2008 and Year 2020 CAL3QHC Hot Spot Modeling Results for No-action Alternative.....	3-31
Table 3-14. Year 2020 CAL3QHC Hot Spot Modeling Results for Preferred Alternative.....	3-32
Table 3-15. Existing Noise Levels.....	3-34
Table 3-16. Noise Abatement Criteria.....	3-35
Table 3-17. Existing Noise Impacts.....	3-35
Table 3-18. Noise Impacts of the No-action Alternative.....	3-35
Table 3-19. Noise Impacts of Preferred Alternative (before mitigation).....	3-36
Table 3-20. Sensitive Receivers Impacted by Noise and Available Mitigation.....	3-40
Table 3-21. NRHP Eligibility Criteria.....	3-48
Table 3-22. Utah SHPO Rating Definitions for Historic Properties.....	3-48
Table 3-23. Historic Structures along State Street.....	3-48
Table 3-24. Preliminary Evaluation of Historic Structures along the Detour Route.....	3-49
Table 3-25. Effects to Historic Properties along State Street due to the Preferred Alternative.....	3-52
Table 3-26. Planned Transportation Projects.....	3-66
Table 3-27. Environmental Effects Comparison Summary.....	3-69
 Table 4-1. Coordination Letters.....	4-3

## List of Figures

Figure 1-1. Project Location Map.....	1-2
Figure 1-2. Study Termini.....	1-4
Figure 1-3. 2005 Utah Valley MPO TIP – UDOT Projects.....	1-5
Figure 1-4. 2005 Utah Valley MPO TIP – Under and Unfunded Projects.....	1-5
Figure 1-5. Utah Valley 2030 LRTP Freeways and Highways Phasing Plan.....	1-7
Figure 1-6. MAG Roadways Functional Classification.....	1-7
Figure 1-7. Planned Trails (source: Utah Valley 2030 LRTP and Nov. 25, 2003 Pleasant Grove City Trails Plan).....	1-8
Figure 1-8. Relationship between Level of Congestion, V/C, and Traffic Conditions.....	1-10
Figure 1-9. Existing and Projected Travel Demand For Roadways within Study Limits.....	1-12
 Figure 2-1. Number of Alternatives versus Level of Evaluation.....	2-2
Figure 2-2. Improve Existing Roadways.....	2-4
Figure 2-3. 127-ft Five Lane Right-of-Way Typical Section .....	2-7
Figure 2-4. Environmental Resources Within the Project Area .....	2-8
Figure 2-5. Road Over Railroad - Retaining Walls.....	2-10
Figure 2-6. Option Road Under Railroad - Retaining Walls.....	2-12
Figure 2-7. Conceptual Five-Lane Vertical Options.....	2-13
Figure 2-8. Horizontal Alignment South Shift Impacts to Wills Memorial Park (Western Segment) .....	2-17
Figure 2-9. Horizontal Alignment Options.....	2-18
Figure 2-10. The Five-Lane Build Alternative.....	2-22

Figure 3-1. Pleasant Grove City Zoning Map.....	3-3
Figure 3-2. Pleasant Grove City Landuse Map.....	3-4
Figure 3-3. Parks Map.....	3-5
Figure 3-4. Census Boundaries.....	3-16
Figure 3-5. Environmental Justice.....	3-17
Figure 3-6. Right-of-Way .....	3-24
Figure 3-7. Planned Trails.....	3-28
Figure 3-8. Noise levels (in dBA) of common sounds .....	3-34
Figure 3-9. Existing (2004) Noise. ....	3-37
Figure 3-10. 2020 No-Action Noise. ....	3-38
Figure 3-11. 2020 Preferred Alternative Noise.....	3-39
Figure 3-12. Drainage Figure.....	3-44
Figure 3-13. Pleasant Grove Historic District Boundary.....	3-50
Figure 3-14. Leaking Underground Storage Tanks. ....	3-53
Figure 3-15. Existing Visual Conditions in the Project Area. ....	3-54
Figure 3-16. Sample Overpass Visual Conditions.....	3-55
Figure 3-17. Construction Detour Route. ....	3-61

# LIST OF ACRONYMS

AADT	Average Annual Daily Traffic	mph	miles per hour
AASHTO	American Association of State Highway and Transportation Officials	MPO	Metropolitan Planning Organization
ac	acre	NAAQS	National Ambient Air Quality Standards
ACHP	Advisory Council on Historic Preservation	NEPA	National Environmental Policy Act
ADA	Americans with Disabilities Act	NHPA	National Historic Preservation Act
APE	Area of Potential Effects	NOI	Notice of Intent
BMP	Best Management Practice	NOT	Notice of Termination
CAAA	Clean Air Act Amendments	NRCS	Natural Resources Conservation Service
CSS	Context Sensitive Solutions	NRHP	National Register of Historic Places
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act	PM10	Particulate Matter with a diameter of less than 10 micrometers
CERCLIS	Comprehensive Emergency Response, Compensation, and Liability Information System	PPM	Parts Per Million
CEQ	Council on Environmental Quality	RCRA	Resource Conservation and Recovery Act
CFR	Code of Federal Regulations	R.R.	Railroad
cfs	cubic foot per second	ROW	Right-of-way
CLG	Certified Local Government	SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Act
CMS	Congestion Management System	sec	seconds
CO	Carbon Monoxide	SHPO	State Historic Preservation Office
dBA	A-weighted decibels	SIP	State Implementation Plan
DERR	Division of Environmental Response and Remediation	SR	State Route
DNR	Department of Natural Resources	STIP	Statewide Transportation Improvement Program
DOE	Determination of Eligibility	SWPPP	Storm Water Pollution Prevention Plan
DOT	Department of Transportation	TDM	Transportation Demand Management
EA	Environmental Assessment	TDS	Total Dissolved Solids
EIS	Environmental Impact Statement	TIP	Transportation Improvement Plan
EPA	Environmental Protection Agency	TNM	Traffic Noise Model
FEMA	Federal Emergency Management Agency	TSM	Transportation System Management
FHWA	Federal Highway Administration	UDAQ	Utah Division of Air Quality
FIRM	Flood Insurance Rate Map	UDEQ	Utah Department of Environmental Quality
FOE	Finding of Effect	UDOT	Utah Department of Transportation
FONSI	Finding of No Significant Impact	UDWQ	Utah Division of Water Quality
ft	foot	UDWR	Utah Division of Wildlife Resources
ft <sup>2</sup>	square foot	UGS	Utah Geological Survey
FTA	Federal Transit Administration	UPDES	Utah Pollutant Discharge Elimination System
HHS	U.S. Department of Health and Human Services	UPRR	Union Pacific Railroad
ILS	Intensive Level Survey	U.S.C	United States Code
ITS	Intelligent Transportation System	USACOE	United States Army Corps of Engineers
L(eq)	Equivalent (or average) Noise Level	USDOI	United States Department of the Interior
LOS	Level of Service	USFWS	United States Fish and Wildlife Service
LRTP	Long Range Transportation Plan	UST	Underground Storage Tank
LUST	Leaking Underground Storage Tank	UTA	Utah Transit Authority
LWCFA	Land & Water Conservation Fund Act	V/C	Volume over capacity
MAG	Mountainland Association of Governments	vpd	Vehicles per day
mi	mile		
MOA	Memorandum of Agreement		
MOU	Memorandum of Understanding		

## LIST OF PREPARERS

The following preparers contributed in creating this Environmental Assessment (EA). Because of the nature of this project, the list includes outside consultants, agencies, and firms that were involved and consulted with regarding the project.

Name and Title	Project Role	Education	Years Experience
<b>U.S. Department of Transportation Federal Highway Administration (FHWA)</b>			
Sandra Garcia-Aline	Lead Agency	BS, Civil Engineering MS, Civil Engineering	8
<b>Utah Department of Transportation (UDOT)</b>			
Richard Crosland	Region 3 Cultural	BA, English MA, Anthropology	17
Geoff Dupaix	Region 3 Public Involvement Coordinator	BA, Broadcast Journalism	5
Craig Hancock, P.E.	Project Manager	BS, Civil Engineering	13
John Higgins, P.E.	Region 3 Environmental	BS, Civil Engineering MS, Civil Engineering	27
Central Environmental			
Shane Marshall, P.E.	Region 3 Design	AS, Engineering BS, Civil Engineering	10
Paul West	Threatened and Endangered Species	BS, Range Science and Wildlife Biology	29
<b>Horrocks Engineers</b>			
Tom Allen, P.E.	Environmental Analysis	BS, Civil Engineering	35
Nancy Calkins	Historian	BS, Botany	20
Stephanee Eastman, P.E.	Noise and Public Involvement	BS, Civil Engineering MS, Civil Engineering	6
Doug Graham, P.E.	Roadway Design	BS, Civil Engineering	9
Matt Horrocks, E.I.T.	Air Quality Analysis, Traffic	BS, Civil Engineering MS, Civil Engineering	2

Name and Title	Project Role	Education	Years Experience
Judy Imlay	Technical Writing/NEPA Review	BA, Political Science JD	10
Stan Jorgensen, P.E.	Environmental Analysis	MS, Civil Engineering BS, Civil Engineering	14
Nicole Tolley, E.I.T.	Environmental Analysis	BS, Civil Engineering	2
Russell Youd, P.E.	Project Manager	MS, Civil Engineering BS, Civil Engineering	16
Carla Wilson, E.I.T.	Environmental Analysis	BS, Environmental Engineering	4
<b>EarthTouch</b>			
Lorna Billat	Cultural Resources	BS, Anthropology MA, Anthropology	25
<b>Rocky Mountain Social Science</b>			
Richard Krannich, PhD	Sociologist	PhD, Sociology	25

## LIST OF TECHNICAL REPORTS

Technical Report Title	Prepared by	Contact
<i>State Street (US-89) Railroad Bridge, Pleasant Grove Technical Noise Report</i>	Horrocks Engineers	Stephanee Eastmen Horrocks Engineers P.O. Box 377 American Fork, Utah 84003
<i>A Cultural Resource Inventory of the Bridge/Underpass Crossing at State Street (US-89) Between 200 South and Main Street in Pleasant Grove, Utah County, Utah</i>	EarthTouch, LLC	Stan Jorgensen Horrocks Engineers P.O. Box 377 American Fork, Utah 84003
<i>State Street (US-89) Road Traffic Analysis</i>	Horrocks Engineers	Matt Horrocks Horrocks Engineers P.O. Box 377 American Fork, Utah 84003
<i>Social Assessment</i>	Richard S. Krannich, PhD Rocky Mountain Social Science P.O. Box 184 Paradise, Utah 84328	Stan Jorgensen Horrocks Engineers P.O. Box 377 American Fork, Utah 84003